

INTERNATIONAL COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 38622	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/IL 00/00337	International filing date (day/month/year) 07/06/2000	(Earliest) Priority Date (day/month/year) 08/06/1999
Applicant ORIDION MEDICAL (1987) LTD.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

- the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).
- b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing :
- contained in the international application in written form.
 - filed together with the international application in computer readable form.
 - furnished subsequently to this Authority in written form.
 - furnished subsequently to this Authority in computer readable form.
 - the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
 - the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. Certain claims were found unsearchable (See Box I).

3. Unity of Invention is lacking (see Box II).

4. With regard to the title,

- the text is approved as submitted by the applicant.
- the text has been established by this Authority to read as follows:

5. With regard to the abstract,

- the text is approved as submitted by the applicant.
- the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

- as suggested by the applicant.
- because the applicant failed to suggest a figure.
- because this figure better characterizes the invention.

1

None of the figures.

PARTNERSHIP COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

Date of mailing (day/month/year) 14 February 2001 (14.02.01)	ETATS-UNIS D'AMERIQUE in its capacity as elected Office
International application No. PCT/IL00/00377	Applicant's or agent's file reference 7804-10133WO
international filing date (day/month/year) 29 June 2000 (29.06.00)	Priority date (day/month/year) 01 July 1999 (01.07.99)
Applicant PORAT, Gadi et al	

1. The designated Office is hereby notified of its election made:

in the demand filed with the International Preliminary Examining Authority on:

16 January 2001 (16.01.01)

in a notice effecting later election filed with the International Bureau on:

2. The election was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

<p>The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No.: (41-22) 740.14.35</p>	<p>Authorized officer</p> <p>A. Karkachi</p> <p>Telephone No.: (41-22) 338.83.38</p>
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PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION
(PCT Rule 61.2)

Date of mailing (day/month/year)

13 February 2001 (13.02.01)

To:

Commissioner
US Department of Commerce
United States Patent and Trademark
Office, PCT
2011 South Clark Place Room
CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

International application No.

PCT/IL00/00337

Applicant's or agent's file reference

38622

International filing date (day/month/year)

07 June 2000 (07.06.00)

Priority date (day/month/year)

08 June 1999 (08.06.99)

Applicant

COLMAN, Lewis

1. The designated Office is hereby notified of its election made:

in the demand filed with the International Preliminary Examining Authority on:

05 January 2001 (05.01.01)

in a notice effecting later election filed with the International Bureau on:

2. The election was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

A. Karkachi

Telephone No.: (41-22) 338.83.38

101009,845

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
14 December 2000 (14.12.2000)

PCT

(10) International Publication Number
WO 00/75956 A3

(51) International Patent Classification⁷: H01J 61/28, 61/14, 61/24

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(21) International Application Number: PCT/IL00/00337

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

(22) International Filing Date: 7 June 2000 (07.06.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
130372 8 June 1999 (08.06.1999) IL
09/542,768 4 April 2000 (04.04.2000) US

Published:
— with international search report

(71) Applicant (*for all designated States except US*): ORIDION MEDICAL (1987) LTD. [IL/IL]; Har Hotzvim Industrial Area, P.O. Box 45025, 91450 Jerusalem (IL).

(88) Date of publication of the international search report: 13 June 2002

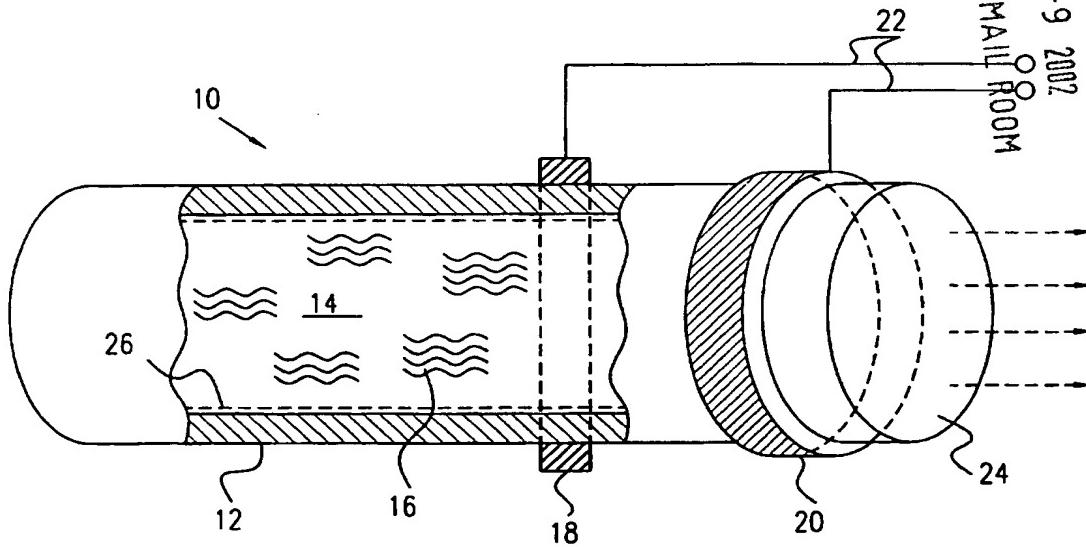
(72) Inventor; and

(75) Inventor/Applicant (*for US only*): COLMAN, Lewis [IL/IL]; 7/3 Petel Street, 97430 Jerusalem (IL).

(74) Agents: COLB, Sanford, T. et al.; Sanford T. Colb & Co., P.O. Box 2273, 76122 Rehovot (IL).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: INFRA-RED LIGHT SOURCE



WO 00/75956 A3

(57) Abstract: A method for increasing the spectral stability of cold cathode discharge infra-red light sources is described, especially for sources operating with a carbon dioxide fill. A catalyst is added inside the lamp envelope to induce recombination of the dissociation products of molecules of the fill gas broken down by the action of the electrical discharge, thus reducing the changes with time in the concentration of excited gas molecules in the lamp active in emitting to ground state levels. Maintenance of the level of self absorption of the lamp emission results in a concomitant maintenance of the spectral shape of the lamp emission.

II INTERNATIONAL SEARCH REPORT

International Application No
PCT/IL 00/00337

A. CLASSIFICATION OF SUBJECT MATTER		
IPC 7	H01J61/28	H01J61/14
		H01J61/24

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H01J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 300 859 A (YATSIV SHAUL ET AL) 5 April 1994 (1994-04-05) cited in the application column 1, line 10 - line 27 column 5, line 51 - column 6, line 31 ---	1-5, 7, 8, 10-14
Y	EP 0 415 600 A (RAYTHEON CO) 6 March 1991 (1991-03-06) page 4, line 24 - line 31 page 4, line 55 - line 58 ---	1, 2, 5, 7, 8, 10, 11, 14
Y	US 4 490 482 A (MATHIEU PIERRE) 25 December 1984 (1984-12-25) column 1, line 8 - line 40 ---	4, 13 -/-

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority, claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

Date of mailing of the international search report

5 October 2000

12/10/2000

Name and mailing address of the ISA
European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Zuccatti, S

INTERNATIONAL SEARCH REPORT

International Application No

PCT/IL 00/00337

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4 639 432 A (HOLT ANDREW ET AL) 27 January 1987 (1987-01-27) column 1, line 25 - line 55 column 2, line 21 - line 28 ---	4,13
Y	US 4 756 000 A (MACKEN JOHN A) 5 July 1988 (1988-07-05) column 7, line 21 - line 28; figure 2 ---	3,4,12, 13
Y	US 4 757 512 A (MACKEN JOHN A) 12 July 1988 (1988-07-12) column 8, line 32 - line 42; figure 2 ---	3,4,12, 13
A	GB 1 591 709 A (EMI LTD) 24 June 1981 (1981-06-24) page 1, line 37 - line 75 -----	1,2,5,7, 8

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IL 00/00337

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5300859 A	05-04-1994	IL 84463 A AT 117462 T CA 1312114 A DE 3852813 D DE 3852813 T EP 0316189 A JP 1161661 A	21-06-1992 15-02-1995 29-12-1992 02-03-1995 31-08-1995 17-05-1989 26-06-1989
EP 0415600 A	06-03-1991	US 4945543 A DE 69027959 D JP 2065267 C JP 3093286 A JP 7105542 B	31-07-1990 05-09-1996 24-06-1996 18-04-1991 13-11-1995
US 4490482 A	25-12-1984	CA 1188288 A	04-06-1985
US 4639432 A	27-01-1987	AT 27551 T CA 1212931 A DE 3371871 D DE 3379320 D EP 0107465 A EP 0107471 A IL 69991 A JP 1768964 C JP 4050855 B JP 59092022 A US 4536375 A ZA 8307689 A	15-06-1987 21-10-1986 09-07-1987 13-04-1989 02-05-1984 02-05-1984 30-11-1986 30-06-1993 17-08-1992 28-05-1984 20-08-1985 27-06-1984
US 4756000 A	05-07-1988	CA 1294694 A DE 3805080 A FR 2611093 A GB 2203281 A, B	21-01-1992 01-09-1988 19-08-1988 12-10-1988
US 4757512 A	12-07-1988	NONE	
GB 1591709 A	24-06-1981	NONE	

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70) 14

Applicant's or agent's file reference BO 44186	FOR FURTHER ACTION		See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/IL00/00337	International filing date (day/month/year) 07/06/2000	Priority date (day/month/year) 08/06/1999	
International Patent Classification (IPC) or national classification and IPC H01J61/00			
<p>Applicant ORIDION MEDICAL (1987) LTD. et al.</p>			

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I Basis of the report
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

Date of submission of the demand 05/01/2001	Date of completion of this report 09.07.2001
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Zuccatti, S Telephone No. +49 89 2399 2710



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IL00/00337

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-11 as originally filed

Claims, No.:

1-14 as originally filed

Drawings, sheets:

1/1 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IL00/00337

the drawings, sheets:

5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims 1-14
	No:	Claims
Inventive step (IS)	Yes:	Claims 6,9
	No:	Claims 1-5,7,8,10-14
Industrial applicability (IA)	Yes:	Claims 1-14
	No:	Claims

2. Citations and explanations see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/IL00/00337

The following documents are mentioned in this report:

D1=US-A-5300859

D2=US-A-4757512

D3=GB-A-1591709

D4=EP-A-0415600

D5=US-A-4756000

D6=US-A-4490482

D7=US-A-4639432

1. D1 (see figures 1 and 2) discloses an IR-radiation lamp according to lines 1-7 of the present claim 10, and a manufacturing method according to lines 1-7 of present claim 1. D1 is also considered by the Applicant as nearest prior art.

According to the present claims 1 and 10, a catalytic material is additionally applied within the lamp envelope.

It is a known problem with CO₂ IR-sources that the CO₂ dissociates, and that measures have to be taken which keep the CO₂ concentration at a certain level in order to maintain the required specifications. This is necessary not only in IR-laser resonators (see eg. D2, column 1, lines column 3, lines 18-29), but also in IR-lamps (see D3) or any other IR source (see D4, page 4, lines 55-58). A well known measure is to place a catalytic material into the closed envelope of the CO₂ IR source, in order to reestablish the original CO₂ level (see D2, D4-D7).

Therefore, the general idea of using a catalyst in an IR-lamp does not involve an inventive activity. For this reason, the subject-matter of claims 1, 8, and 10, 14, lacks an inventive step (Article 33.3 PCT).

2. The advantageous effects mentioned in the application (see eg. page 10, last paragraph, to page 11, second paragraph) are extra effects which may also be obtained applying the aforementioned idea. This appears to apply with respect to claim 2 and 11 (reduction of the change in self-absorption), or to the advantages expressed in claims 5 and 7. The possible reduction in size or CO₂ concentration appears to be implied by the fact that the catalyst avoids CO₂ losses and no excess CO₂ needs to be provided.

Note, however, that claims 5 and 7 are not clear in the sense of Article 6 PCT (unclear scope of protection), because only an optional reduction in size or CO₂ concentration is

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/IL00/00337

claimed ("... can be decreased"), so that claims 5 and 7 do not define a clear limitation with respect to claim 1.

Suitable catalyst materials are known from D2 (silver), D4 (deuterium), D5 (gold), D6 (platinum, palladium), D7 (nickel, rhodium, iridium).

D2 shows that the catalyst material, silver in this case, may be coated on an inside wall of the laser resonator (see figure 2, column 8, lines 32-42).

For these reasons, the subject-matter of claims 2-5, 7, and 11-13, lacks an inventive step.

3. The present application does not meet the requirements of Rules 5.1.a.ii and 6.3.a PCT, because claims 1 and 10 are not fully supported by the description. There is only support for a catalyst for regenerating the IR active medium, only one of which (CO_2) has been discussed as an example. No catalyst for other purposes was indicated in the application.

4. The subject-matter of claims 6 and 9 is not derivable from the cited documents and meets therefore the requirements of Article 33.3 PCT).

4. The documents referring to the catalyst materials should be identified in the description, according to Rule 5.1.a.ii PCT.
